EXHIBIT E

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Computer Dictionary

TENTH EDITION

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WEBSTER'S NEW WORLD™

COMPUTER DICTIONARY

10TH EDITION

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should be done are called Basic Encoding Rules (BER). Examples of data types include telephone numbers and bibliographic citations. The standard is a key part of the Open Systems Interconnection (OSI) protocol suite but has had relatively little impact on other networking standards, with the exception of e-mail protocols such as X.400 and X.500. See *Basic Encoding Rules (BER), OSI Protocol Suite.*

AC-3   An audio file compression and file encoding standard developed by Dolby Laboratories that enables the compression of up to six channels of digital audio into a compact data stream.

AC adapter   An accessory that modifies ordinary household electrical current so that it can be used with an accessory that requires a different voltage, such as computer speakers or a portable computer.

ACAP   See *Application Configuration Access Protocol.*

Accelerated Graphics Port   See *AGP.*

accelerator board   A circuit board designed to speed up some function of a computer. A graphics accelerator board, for example, contains a microprocessor that relieves the central processing unit (CPU) of many video chores, enabling it to get to other work sooner.

accelerator key   See *shortcut key.*

accent   A mark that forms one of the special characters of many languages. Some examples include: ç (cedilla), ` (grave), ^ (macron), and ~ (tilde). Accented characters are included in most font sets, and some application programs include commands or keystrokes that insert accented characters for the user. See *compose sequence, extended character set.*

Acceptable Use Policy   See *AUP.*

acceptance test   A final demonstration of a new software or hardware product that illustrates the product's capabilities and special features. When companies or other entities hire systems analysts or other computer consultants to do work for them, the acceptance test serves to show that the consultants have satisfied their contract obligations.

access   **1.** The right or ability to gain entry to a computer system and make use of its resources. **2.** On a computer system, to open or retrieve any kind of data or document. **3.** To retrieve data or program instructions from a hard or floppy disk drive or from a computer connected to another computer by a network or a modem.

Access   See *Microsoft Access.*

access arm   See *head arm.*

access charge   In telecommunications, a fee levied by a communications company for the use of its network. To reach customers, long-distance telephone companies must pay local telephone companies an access charge.

access code   An identification number or password used to gain access to a computer system. See *password, security.*

access control   In a network, a means of ensuring the system's security by demanding that users supply some means of identifying themselves, such as a login name and password. The most secure authentication systems require the user to know something (such as a password) and have something (such as a smartcard). See *authentication.*

access control list (ACL)   In a network, a database that lists the valid users of the systems and the level of network access that they have been granted.

access denied   An error message indicating that a file cannot be opened or modified. This message often means that the file is in use by another application or user.

access hole   See *head access aperture.*

K

K   Abbreviation for kilobyte (1,024 bytes). See *byte.*

K8   A 64-bit microprocessor developed by Advanced Micro Devices (AMD) to compete with Intel's line of 64-bit microprocessors, initiated by the Itanium. Unlike the Itanium, the K8 is designed to be downwardly compatible with IA-32 (32-bit Windows code) without resorting to the inefficiencies of emulation. See *Athlon, Duron, IA-64, Itanium, IA-32.*

Katmai New Instructions (KNI)   A set of microprocessor instructions that implement 3-D graphics capabilities. See *streaming SIMD extensions (SSE).*

Kb   Abbreviation for kilobit (1,024 bits). See *bit.*

KB   Alternative abbreviation for kilobyte (1,024 bytes). See *byte.*

Kbps   Abbreviation for kilobit per second. See *bits per second (bps).*

KDE   Acronym for the K Desktop Environment. A desktop environment for Linux and other Unix-like operating systems created by a group of largely European volunteers. Designed to remedy the shortcomings of the X Window System, KDE brings a well-designed graphical user interface (GUI) to Unix-like systems, which have not been noted for ease of use. KDE combines the best concepts of the Microsoft Windows and Mac OS interfaces and is designed to transform Linux into a serious contender for desktop applications. Hundreds of KDE-compatible applications are available, including the KDE Office suite, which includes a word processing program (KWord), a spreadsheet (KSpread), a PowerPoint-like presentation graphics program (KPresenter), a vector-graphics-based illustration program (Karbon 14), an image-editing program (Krito), and a flowcharting application similar to Microsoft's Visio package (Kivio). KDE faces competition from a competing project called GNOME; the two projects are working toward interoperability, but progress is slow. See *GNOME, graphical user interface (GUI), Linux, X Window System.*

Kerberos   An authentication system for computer networks developed at the Massachusetts Institute of Technology (MIT). Unlike server-based authentication systems, which provide only a single point of authenticated entry to the network, Kerberos enables administration and management of authentication at the network level. Passwords are encrypted to prevent interception en route. Kerberos is widely implemented in Unix-based networks and is the default authentication service for Microsoft's server operating systems. See *authentication.*

Kermit   An asynchronous communications protocol that makes the error-free transmission of program files via the telephone system easier. Developed by Columbia University and placed in the public domain, Kermit is used by academic institutions because, unlike XMODEM, Kermit can be implemented on mainframe systems that transmit 7 bits per byte. See *communications protocol.*

kernel   In an operating system, the core portions of the program that reside in memory and perform the most essential operating system tasks, such as handling disk input and output operations and managing the internal memory. See *Linux, Unix.*

kerning   In desktop publishing, the adjustment of space between certain pairs of characters so that the characters print in an aesthetically pleasing manner.

Kerr effect   The tendency of polarized light to shift its orientation slightly when reflected from a magnetized surface. Magneto-optical discs rely on the Kerr effect to read and write data.

open tag In markup languages such as SGML, XML, and HTML, the series of characters that demarcates the beginning of a markup element. In HTML, <blockquote> is the open tag for the blockquote element; </blockquote> is the closing tag. See *HTML, markup language, SGML, XML.*

OpenWindows A graphical user interface (GUI) developed by Sun Microsystems that is based on the X Window System standard for Unix computers. See *Motif.*

operand The argument that is appended to an operator, such as a spreadsheet program's built-in function. For example, in the Excel expression AVERAGE(D10:D24), the cell range D10 to D24 is the operand of the AVERAGE function.

operating environment The total context in which applications function, including the operating system and hardware platform.

Operating System/2 See *OS/2.*

operating system (OS) A master control program that manages the computer's internal functions, such as accepting keyboard input, and that provides a means to control the computer's operations and file system. Typically, a computer's operating system is automatically loaded into memory when the computer is powered on; this operation is called booting.

Most operating systems are designed to run on a specific hardware platform. Still, it is possible to write operating systems in such a way that they can be ported (translated) so that they run on different hardware platforms. This is done by creating the operating system in such a way that most of the components are designed to function at a level of abstraction beyond the hardware level. Although operating systems vary, almost all of the features that are today regarded as essential to an operating system have their origin in Unix, which was developed at AT&T's Bell Laboratories (and subsequently by university professors and graduate students) during the 1970s

and 1980s, as well as its ill-fated predecessor, Multics, and certain other early systems. By the mid-1980s, Unix had successfully incorporated preemptive multitasking, multithreading, multiuser capabilities, interprocess communication, application programming interfaces (API), multiprocessing, and other key innovations. With these features, Unix enables two or more applications to run simultaneously without interfering with each other's use of the memory (preemptive multitasking), permits applications to run two or more of its tasks simultaneously (multithreading), enables two or more users to use the system as if each of them had sole control (multiuser capabilities), enable applications to exchange data and give each other instructions (interprocess communication), provides a standardized set of system calls by which programmers can access operating system functions (application programming interface), and exploits the capabilities of computer systems that have two or more CPUs (multiprocessing). Today, most leading operating systems emulate Unix's advanced features or directly incorporate Unix code; Mac OS X, for example, is built on BSD Unix; in addition, several versions of Microsoft's Windows NT-derived operating systems (including Windows 2000) are known to incorporate BSD code. Gaining market share more rapidly than any other operating system at this writing is Linux, a Unix-like operating system that is under development by a worldwide programming team.

Operating systems vary according to their intended function. Server operating systems (such as Unix, Unix-related operating systems such as Linux and FreeBSD, and Microsoft Windows XP Server) are designed to make data and applications available to other applications on a local area network or the Internet. Other operating systems (such as Microsoft Windows XP Home) are designed with the end user in mind, and do not burden the user with a server operating system's complexity. Still other operating systems, called embedded operating systems, are designed to be

sysop   Abbreviation for system operator. A person who runs a bulletin board system (BBS).

system   **1.** An organized collection of components that have been optimized to work together in a functional whole. **2.** The entire computer system, including peripheral devices. See *computer.*

System/360   A line of mainframe computers introduced by IBM in 1964 that was responsible for a series of key technological innovations, including the use of integrated circuits, software compatibility across an entire series of computers, input/output (I/O) channels with interrupt requests, and microprogramming. Developed with a bet-the-company investment of $5 billion, an astronomical sum in 1960s, System/360 was as much a marketing as a technological innovation: it was designed to provide a stable upgrade path by which a customer could begin with one of the smaller, less expensive systems, and upgrade smoothly to more powerful models as the business grew. Although System/360 development was plagued by delays and cost overruns, the new line of computers was so successful that it relegated all of IBM's competitors to the status of bit players.

system administration   Collectively, all the tasks related to running a multiuser computer system safely and efficiently while, at the same time, keeping users happy; since these two jobs conflict, system administration is often cited as the canonical thankless job. Typical system administration tasks include managing users, maintaining printers, backup up data, providing user support, monitoring system activity, plugging security holes, ensuring adequate disk space, solving network problems, and installing new equipment.

system administrator   The person responsible for system administration duties in an organization's multiuser computer system. See *system administration.*

system board   IBM's term for motherboard.

system call   An application's request for services from the computer's operating system, such as a request to open a file. The syntax for writing system calls is specified by the operating system's application programming interface (API).

system clock   A timer circuit on the motherboard that emits a synchronizing pulse at a regular interval, such as 33,000,000 times per second on a 33 MHz motherboard. The pulses of the system clock help synchronize processing operations. See *clock cycle.*

system date   The calendar date that a computer system maintains even when the power is switched off, thanks to a battery inside the computer's case.

system disk   A disk that contains the operating system files necessary to start the computer. Hard disk users normally configure a hard disk to serve as the system disk.

system error   In a computer system, an inherent flaw in the system that produces incorrect, erroneous, or misleading results. System errors compromise system reliability. See *reliability.*

system file   A program or data file that contains information that the operating system needs; distinguished from the program or data files that the application programs use.

System Folder   A folder in the Macintosh desktop environment that contains the System and Finder files, the two components of the Mac's operating system. In addition to the System and Finder files, the System Folder also contains all the desk accessories (DAs), INITs, control panel devices (CDEVs), screen fonts, downloadable printer fonts, and printer drivers available during an operating session. See *blessed folder, downloadable font.*

system integrator   An individual or company that provides value-added reseller (VAR) services by combining various components and programs into a functioning system, customized for a particular customer's needs.

voice synthesis The audible output of computer-based text in the form of synthesized speech that people can recognize and understand. Voice synthesis is much easier to achieve than voice recognition; one can equip virtually any personal computer to read ASCII text aloud with few errors. This capability has helped blind people gain increased access to written works not recorded on cassette tape. See *speech recognition.*

VoIP Acronym for Voice Over IP. The use of TCP/IP-based packet switching technology to transmit voice calls over long-distance trunk lines. Because packet-switching networks can carry more calls over a transmission channel of given bandwidth than circuit-switching networks, VOIP has an inherent economic advantage in that long-distance carriers using VOIP can offer lower long-distance rates. However, the quality of service (QoS) may be lower than that offered by traditional long-distance carriers. See *QoS.*

volatility The susceptibility of a computer's random access memory (RAM) to the complete loss of stored information if power is interrupted.

volume A unit of storage that is normally the same as a disk (floppy or hard); however, it is possible to map volumes to more than one disk, and a disk can likewise contain two more volumes.

volume label An identifying name assigned to a disk and displayed on the first line of a directory. The name can be no longer than 11 characters and is assigned when one formats the disk.

volume purchasing agreement A contract between a software publisher and a purchaser (such as a company or university) that enables the purchaser to receive a significant discount as long as a large number of copies of a program are ordered. See *commercial software, site license, software license.*

von Neumann bottleneck The limitation on processing speed imposed by computer architectures linking a single microprocessor with memory. John von Neumann discovered that a program will spend more time retrieving data from memory than it spends actually processing it. One proposed solution to the von Neumann bottleneck is parallel processing, in which a program's tasks are divided between two or more microprocessors. Existing programming languages and techniques, however, cannot handle parallel processing very well. The Pentium microprocessor minimizes the von Neumann bottleneck by incorporating separate caches for data and instructions. See *stored program concept.*

VR See *virtual reality.*

VRAM See *video RAM.*

VRML Acronym for Virtual Reality Modeling Language. A scripting language that enables programmers to specify the characteristics of a three-dimensional world that is accessible on the Internet. VRML worlds can contain sounds, hyperlinks, videos, and animations as well as three-dimensional spaces, which can be explored by using a VRML plug-in.